

## SECTION 09 5100

### ACOUSTICAL CEILINGS

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#### LANL MASTER SPECIFICATION

When editing to suit project, author shall add job-specific requirements and delete only those portions that in no way apply to the activity (e.g., a component that does not apply). To seek a variance from applicable requirements, contact the ESM Architectural POC.

When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.

Delete information within "stars" during editing.

Specification developed for ML-3 projects. For ML-1 / ML-2, additional requirements and QA reviews are required.

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#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Suspended metal grid ceiling suspension system.
- B. Acoustical panels (non-fire rated assembly)
- C. Perimeter trim.

##### 1.2 QUALITY ASSURANCE

- A. Use products of companies specializing in the manufacture of ceiling suspension systems and ceiling panels having satisfactorily performed in at least fifty projects of equivalent nature and scope.
- B. Use an installer having satisfactorily performed in at least 50 projects of equivalent nature and scope, and whom the materials manufacturers approve.

##### 1.3 SUBMITTALS

- A. Submit the following in accordance with Section 01 3300, Submittal Procedures:
  - 1. Catalog data on metal grid ceiling suspension system components and ceiling panels.
  - 2. Manufacturer's documentation of recycled content for acoustical ceiling panels.
  - 3. Manufacturer's documentation of buyback and recycling program.

4. Manufacturer's certification of asbestos and lead paint-free products.
5. Manufacturer's installation instructions.
6. [Twelve inch square sample of ceiling panel.]

#### 1.4 PROJECT CONDITIONS

- A. Install ceiling panels only after building is enclosed, sufficient heat is provided, dust generating activities have been finished, overhead work is completed, tested and approved, and interior wet work is dry.
- B. Maintain uniform temperature of minimum 60 degrees F, and a maximum humidity of 40 percent prior to, during, and after ceiling panel installation.

#### 1.5 EXTRA MATERIALS

- A. Provide [ ] cartons of each type of ceiling panel used to the LANL Construction Inspector.

### PART 2 PRODUCTS

#### 2.1 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. Alternate products may be accepted; follow 01 2500, Substitution and Procedures.

#### 2.2 SUSPENSION SYSTEM

- A. Manufacturers:
  1. Armstrong World Industries Inc., Prelude 7300 Series exposed system.
  2. Chicago Metallic Corporation, 500 Snap-Grid exposed system.
  3. USG Interiors, DX exposed system.
- B. Materials:
  1. Grid: ASTM C635, heavy duty, non-fire rated, exposed T components, die cut and interlocking.
  2. Accessories: Stabilizer bars, clips, splices, edge moldings, and as required for suspension system by the manufacture.
  3. Grid materials: Commercial quality cold rolled steel with galvanized coating and white painted finish.

## 2.3 CEILING PANELS

### A. Manufacturers:

1. Armstrong World Industries Inc., Cortega.
2. Celotex Corporation, Natural Fissured.
3. USG Interiors, Inc., Acoustone F Fissured.

### B. Materials:

1. Acoustical Panels: Water-felted, rigid mineral fiberboards:
2. Comply with the requirements of ASTM E1264, Type I, Type III, or Type XII; manufacturer's standard thickness, but not less than 5/8 inch thick.
3. Recycled Content:
  - a. Type I, Type III: 50 percent minimum.
  - b. Type XII: 25 percent minimum.
4. Size: 24 x 48 inches, unless indicated otherwise on Drawings.
5. Light reflectance: LR-1.
6. NRC range: 0.65-0.75.
7. Edge: Square.
8. Surface color: White.
9. Surface finish: Fissured.
10. Flame spread/smoke developed: 25/50 or less per ASTM E84.

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Specify plastic faced panels in labs where no airborne panel particles are acceptable, and in areas requiring frequent cleaning.

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## 2.4 PLASTIC FACED CEILING PANEL

### A. Manufacturers:

1. Armstrong World Industries Inc. – “Clean Room Mylar 1716”

2. Celotex Corporation - "Vinylshield "

3. USG Interiors, Inc. - "ClimaPlus"

B. Materials:

1. Size: 24 by 48 inches.

2. Thickness: 5/8 inch.

3. Composition: Mineral fiber.

4. Light reflectance: LR-0.75.

5. NRC range: 0.55-0.65.

6. Edge: Square.

7. Surface color: White.

8. Surface finish: Plastic film.

9. Flame spread/smoke developed: 25/50 or less per ASTM E84.

## PART 3 EXECUTION

### 3.1 INSPECTION

A. Verify existing conditions as specified above before beginning work.

B. Verify that layout of hangers will not interfere with other work.

C. Beginning of installation indicates acceptance of existing conditions. Do not begin work, and notify LANL Construction Inspector if existing conditions will adversely affect acceptable results.

### 3.2 INSTALLATION

A. Install system in accordance with ASTM E580 "Areas Subject to Severe Seismic Disturbance."

B. Install system capable of supporting imposed loads to a deflection of 1/360 maximum.

C. Locate systems on room axes according to reflected ceiling plans on the Drawings.

- D. Supply hangers or inserts, if required by structural materials above, with instructions for their correct placement. Provide additional hangers and inserts as required.
- E. With the exception of wall molding, hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- F. Where ductwork or other work prevents the regular spacing of hangers, reinforce the nearest affected hangers to span the extra distance.
- G. Do not support other building components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Support component loads with supplementary hangers located within 6 inches of each corner, or support components separately.
- H. Do not load system eccentrically, or produce rotation of members.
- I. Install wall molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions.
- J. Fit ceiling panels in place free from damaged edges or other defects detrimental to appearance or function.
- K. Install ceiling panels' level in uniform plane, and free from twist, warp and dents.

### 3.3 TOLERANCES

- A. Maintain tolerances within the following limits:
  - 1. Variation from flat and level surface: 1/8 inch in 10 feet.
  - 2. Variation from plumb of grid members caused by eccentric loads: 2 degrees maximum.

### 3.4 CEILING TILE REMOVAL

- A. Verify with LANL Construction Inspector that asbestos and radiological surveys have been completed and the results allow free release.
- B. Remove ceiling tiles and separate clean (untreated, unpainted, and uncontaminated with water, adhesives, oils, solvents, mastics, and like products) ceiling tile for recycling. Coordinate potential LANL reuse with LANL Construction Inspector.
- C. Stack clean ceiling tiles on pallets for handling.

- D. Store clean ceiling tiles off ground and under cover to prevent contamination of materials by water, freezing, foreign matter or other causes.

END OF SECTION

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Do not delete the following reference information:

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FOR LANL USE ONLY

This project specification is based on LANL Master Specification 09 5100 Rev. 0, dated January 6, 2006.